

Cryptocurrencies' challenge to central banks

Antonio Fatas (INSEAD , CEPR and ABFER)

Beatrice Weder di Mauro (INSEAD , CEPR and ABFER)

Abstract

Central banks are alert to the challenge of cryptocurrencies, and are contemplating reactions ranging from prohibiting private issuance to embracing them. This column argues that the risks of introducing central bank digital currency are high while the efficiency gains do not seem large. A more efficient system can be achieved via innovation in current payment infrastructure.

Introduction

The sudden rise of cryptocurrencies may pose challenges to central banks and financial intermediaries alike. At least these are their fans' hopes and targets: to create private currencies that compete successfully with the official fiat currencies and disrupt business models of banks. In a first Vox column, "Making (some) sense of cryptocurrencies" (Fatas and Weder di Mauro 2018), we examined their merit as substitutes for money and concluded that they are unlikely to achieve their high-flying aims. But we did concede that they have exposed inefficiencies in payments systems, in particular in cross-border transactions, and may contribute to redefining the concept of money as a means of payment. In China, plastic and paper are vanishing so quickly that vendors refuse to accept them, while phone-based payments systems are becoming ubiquitous. It is notable that it was the very absence of well-integrated and universally accessible electronic payments systems that opened the space for internet companies (Tencent and Alibaba) to leapfrog ahead in the fintech race (Chorzempa 2018).

The central banking community is alert to the challenge and is contemplating reactions which range from prohibiting private issuance to embracing them. For instance, in Sweden, where cash has also been declining so rapidly that it raises the prospect that the only legal tender might disappear, the Riksbank is considering whether it should introduce an e-krona, an electronic version of the Krona that could even be anonymous like cash – or, more precisely, *pseudonymous* like bitcoin (Sveriges Riksbank 2017).

Why central banks care

The interest in electronic forms of money as a substitute for physical cash had recently received some impetus when central banks in advanced economies collectively found themselves at the zero lower bound and wondering by how much they could further reduce rates before triggering a flight into cash. In a cashless society, monetary policy rates would

not face an effective lower bound, which might obviate the need for quantitative easing measures (e.g. Buitier 2009). In addition, the strong evidence that anonymous cash is valued by those who conduct illegal business or are trying to evade taxes has increased calls for abolishing cash (Rogoff 2016).

But central banks now face a new challenge from private currencies, which might threaten the monopoly of issuance.¹ If cash vanishes, it would leave households and firms without access to risk-free central bank money. Private money, whether it is issued by a bank or mined in a crypto community, is not backed by central bank. The former carries counterparty risk (partially mitigated by deposit insurance) and the latter carries stability and exchange rate risks.

The introduction of parallel currencies can have an effect on the operations of central banks at many levels (Fernández-Villaverde and Sanches 2016). There is an analogy between this situation and the case of central banks dealing with partial dollarisation of their economies (Baliño et al. 1999). First, if transactions in the new currency are widespread, it might make it impossible for the central bank to find appropriate intermediate targets for its monetary policy. Second, as individuals, corporations, and possible financial institutions increase their holdings of the new currency, it can potential make the financial system less stable unless the central bank can find ways to stabilise liquidity in those currencies. Finally, it can induce additional uncertainty and volatility in the exchange rate (Calvo and Vegh 1992)

What are the central bank options?

Central banks could create central bank digital currency (CBDC) for all individuals. They could provide a digital means of payments, which would be claims on the central bank. The simplest solution would be to allow individuals and corporations (not only financial intermediaries) to directly hold accounts at the central bank, which might even be interest bearing (Bordo and Levin 2017, BIS 2018a). Alternatively, central banks could resort to issuing own cryptocurrencies, possibly using some decentralised and near anonymous technology to mimic and replace banknotes (Andolfato 2015).

The case for central bank digital currencies

For individuals, the advantage of holding central bank digital currency should come from efficiency in payment systems and handling of risks in deposit accounts.

Direct access to central bank accounts would enable the general public to hold legal tender in electronic form. If central banks chose to open up access to central bank accounts 'to all', this would create a centralised ledger making payments settlements extremely fast as all accounts would be in the same system without the need of intermediaries. If deposits were mostly held at the central bank, deposit insurance would also be obsolete.

¹ <https://www.nytimes.com/2018/05/04/upshot/should-the-fed-create-fedcoin-to-rival-bitcoin-a-former-top-official-says-maybe.html>

Retail cross-border payments might also benefit if conducted through central banks directly, if central banks coordinated on mechanisms to handle those international payments. Setting standards would be much easier if there was just one centralised system per country. One might even imagine that some central banks open accounts for non-residents to offer their currency as vehicle for international payments – thus creating negative international spillovers, to which we return below.

The case against central bank digital currency

Out of the two options we have discussed, a central bank cryptocurrency using technologies similar to bitcoin and other cryptocurrencies would suffer from some of the same problem as those currencies (the decentralised validation process is inefficient and slow, and anonymity more a disadvantage than an advantage). Central banks seem to be reaching this conclusion as they are experimenting with cryptocurrency-type technologies since many of their projects require more centralization (Berentsen and Schar 2018). In addition, while replicating the anonymity of cash in electronic format might sound appealing, central banks would not want to offer cryptocurrencies as vehicles for illegal activities. On several grounds, the case against central bank cryptocurrencies seems to be strong.

What about the other CBDC option – central banks accepting deposits ‘from all’?

A key issue is how such a CBDC would affect financial stability and financial intermediaries. The presence of a safe deposit at the central bank could make commercial bank deposits highly volatile and bank runs could happen at the click of a mouse (or a nod to a mobile phone). The result may be sharply higher volatility and periodic panic flights to safety. In addition, shifting deposits to central banks might mean a challenge to existing business models of banks since they might lose a stable and cheap source of funding, namely, deposits. How strong this competition is will depend on how those accounts are handled. Would such funds be limited? Would they pay an interest? Furthermore, banks would lose the income they make from facilitating payments and also from the related network of relationships they build with their customers. To the extent that such services, networks, or even customer information are complementary to other banking services such as lending and wealth management, the competition for funds from central banks may have even larger disruptive consequences.

From the narrow perspective of the central bank, a general purpose CBDC may entail risks to its balance sheet. With higher demand for central bank money, it might need to hold more risky assets (sovereign debt or private assets). This might expand the role of central banks in maturity and credit risk transformation to banks and markets and expose them to political pressure, possibly weakening their independence (BIS 2018a). And if deposits at the central bank were interest bearing, profits from seignorage could be affected. Finally, responsibility for compliance with KYC (know your customer) and AML (anti-money laundering) would fall on the central bank. These operations might be outsourced to private operators but the difference with the present system is that the deposit would be a liability of the central bank and mistakes would – at the very least – carry reputational risks for them.

Should non-residents be allowed to hold the CBDC, this might entail cross-border externalities since it would expand global liquidity and the provision of safe assets. In times of crisis, capital flight from vulnerable countries into safe haven central banks could be magnified with related pressures on exchange rates and asset prices. (BIS 2018a).

Given such uncertainties, central bank accounts 'for all' would seem remote. Not so. This summer, Switzerland will be holding a referendum on a radical proposal: the 'sovereign money' initiative proposes that 100% of sight deposits be transferred to the central bank and commercial banks be prevented from creating money. Bacchetta (2018) shows how this reform would dislocate the banking sector, threatening financial stability as well as the central banks' ability to conduct monetary policy.

So overall, the risks and uncertainties surrounding the adoption of CBDCs in the form of decentralised cryptocurrencies but also in the form of centralised provision central banks accounts seem to outweigh the advantages. This raises the question of whether payments systems – the main weakness of the existing infrastructure – can be improved in other ways.

Improving payments systems without a CBDC

There is increasing pressure for faster and more efficient payment systems. Lack of innovation on payment systems comes from the complex and outdated infrastructure that banks use. But, as we argued above, completely revamping the bank deposits model comes at a cost. Can innovation be introduced without challenging the bank deposit model?

Recent changes in regulation are likely to do so because they mandate banks to give access to providers of payment technologies ('apps'). The open banking initiative in the UK or the related PSD2 directive of the EU are actively promoting innovation by requiring banks to provide access via APIs to customers' accounts. The recent successful launch of a united payments interface in India to facilitate real-time payments is another example where regulation and coordination can make a large difference. In all these examples, individuals can use their preferred smartphone app to conduct payments without having to embrace a world with separate money balances and possibly separate currencies.

They use traditional currencies, commercial banks (with deposit insurance) continue to hold the money balances, but transactions are intermediated by small or large players in the payment space. Together with the ongoing upgrade of the existing Real Time Gross Settlement Systems (RTGS) (Carney 2018) we end up with a system that satisfies the demands increasingly brought forward by new technologies but maintaining the backbone of bank deposits and traditional central banks.

Smooth and low-cost cross-border payments systems are crucial for the functioning within the euro area, since national closed-loop solutions could lead to fragmentation. Thus, the European system is being upgraded and the new TARGET instant payment settlement (TIPS) service was launched recently and should be fully operational by the end of 2018. (ECB 2017).

However, beyond the euro area, central banks and regulators may fall short in improving cross-border retail payments systems. On one hand there is the complication of dealing with settlements systems across different currencies, on the other there is the lack of a global regulator or central bank that can impose a standard or a particular technology. This is a world where new players might have more room to challenge the status quo.

Conclusion

The risks of introducing central bank digital currency are high while the efficiency gains do not seem large. Cryptocurrencies issued by central banks would suffer from all the disadvantages of cryptocurrencies without offering clear advantages. Digital money 'for all' on central banks' balance sheets could have disruptive effects on the financial system without offering strong advantages over a well governed two-tier system. A more efficient system can be achieved via innovation in current payment infrastructure that is encouraged by regulation which opens up competition to new players and technologies while maintaining the backbone of bank deposits and traditional central banks.

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